



Web Enabled Timeline Analysis System WEBTAS

Program Manager: John Mucks
AF Research Lab, Rome, NY
DSN: 587-7950
Com: (315) 330-7950
mucksj@rl.af.mil

- WebTAS is a set of generic analytical tools that are domain tailorable on site
- Tools include: Timeline, Map, Query, Graph, Histogrid, Situation Modeling, Situation Assessment
- Recently re-engineered to JAVA, WEB environment
- Tailored to support various domains to include: Foreign C3I, Counter Drug, Counter Insurgency, LEA, Space Surveillance, Deception and Denial, Information Warfare
- Software is Government owned, distributed on CD,

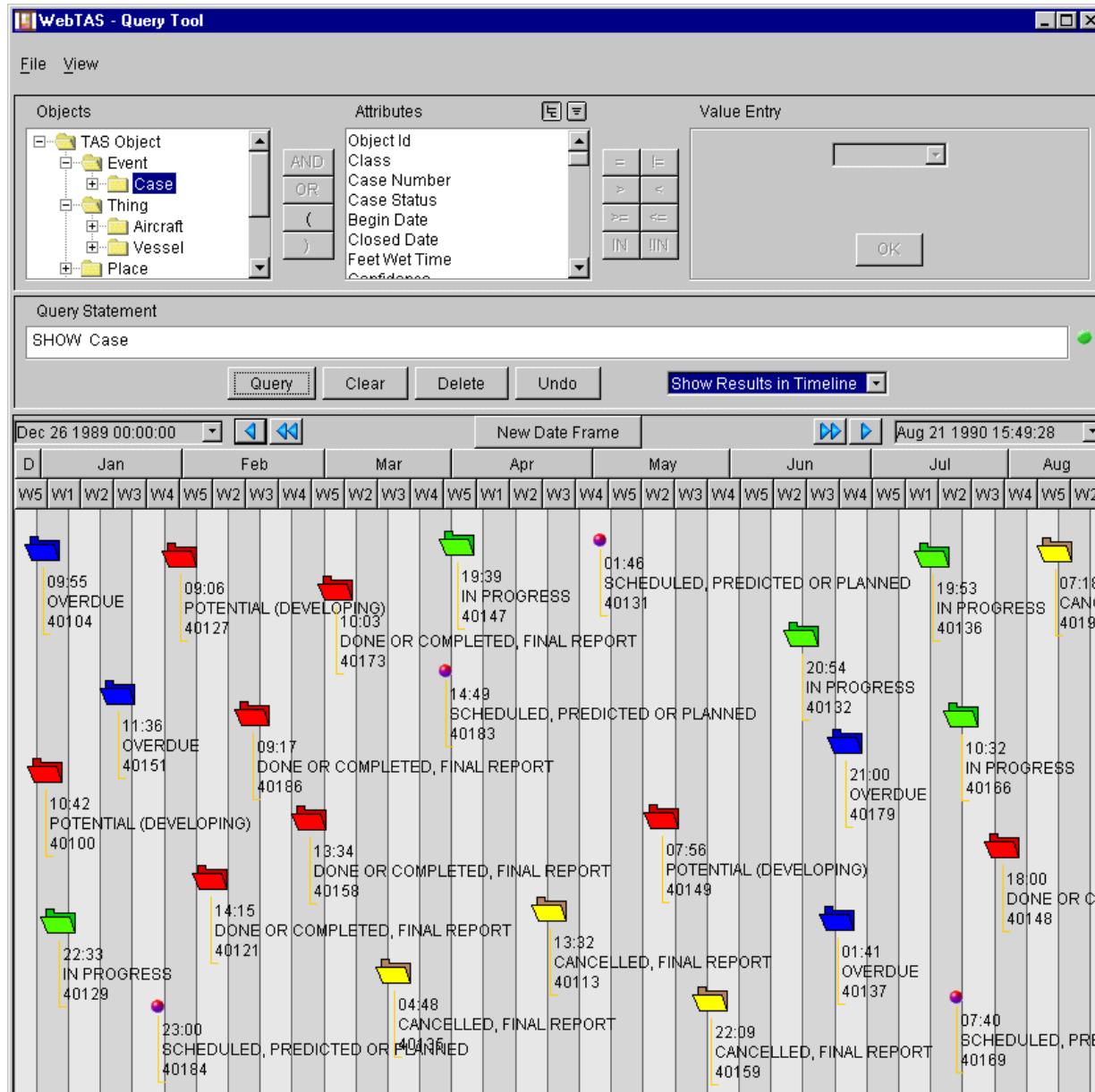
WebTAS Query Tool

The screenshot shows the WebTAS Query Tool window. The top menu bar includes File, View, and Query. The left pane displays a tree view of objects: TAS Object (Callsign, Event, Case, Track, Organization, Person), Attributes (Object Id, Class, Flight Plan, Sorted, Border Crossings, Country Code, Force Code, Average Altitude, Number of Altitudes), and Value Entry (INSIDE, OUTSIDE, INTERSECTS). The middle pane contains a query statement: "SHOW Air Track Where TOI Type = 'SUSPECT' AND [Track Points INSIDE Rectangle [BL(001414N 0831622W), UR(204055N 0565433W)]]". Below this are buttons for Query, Clear, Delete, Undo, and Show Results in Table. The bottom pane shows a table with 874 rows of results:

Row	Force Code	Number	Date	TOI Type	Duration	Route	Origin Count
1		T03171	Nov 16 1999 10...	SUSPECT	12.01		
2		T00614	Nov 16 1999 10...	SUSPECT	10.99		
3		T00843	Nov 16 1999 10...	SUSPECT	9.00		
4		T07601	Nov 16 1999 10...	SUSPECT	9.99		
5		T07630	Nov 16 1999 10...	SUSPECT	16.00		
6		T04080	Nov 16 1999 10...	SUSPECT	6.00		
7		T01545	Nov 16 1999 10...	SUSPECT	1.00		
8		T00379	Nov 16 1999 10...	SUSPECT	4.00		
9		T08645	Nov 16 1999 10...	SUSPECT	10.00		
10		T02524	Nov 16 1999 10...	SUSPECT	6.00		

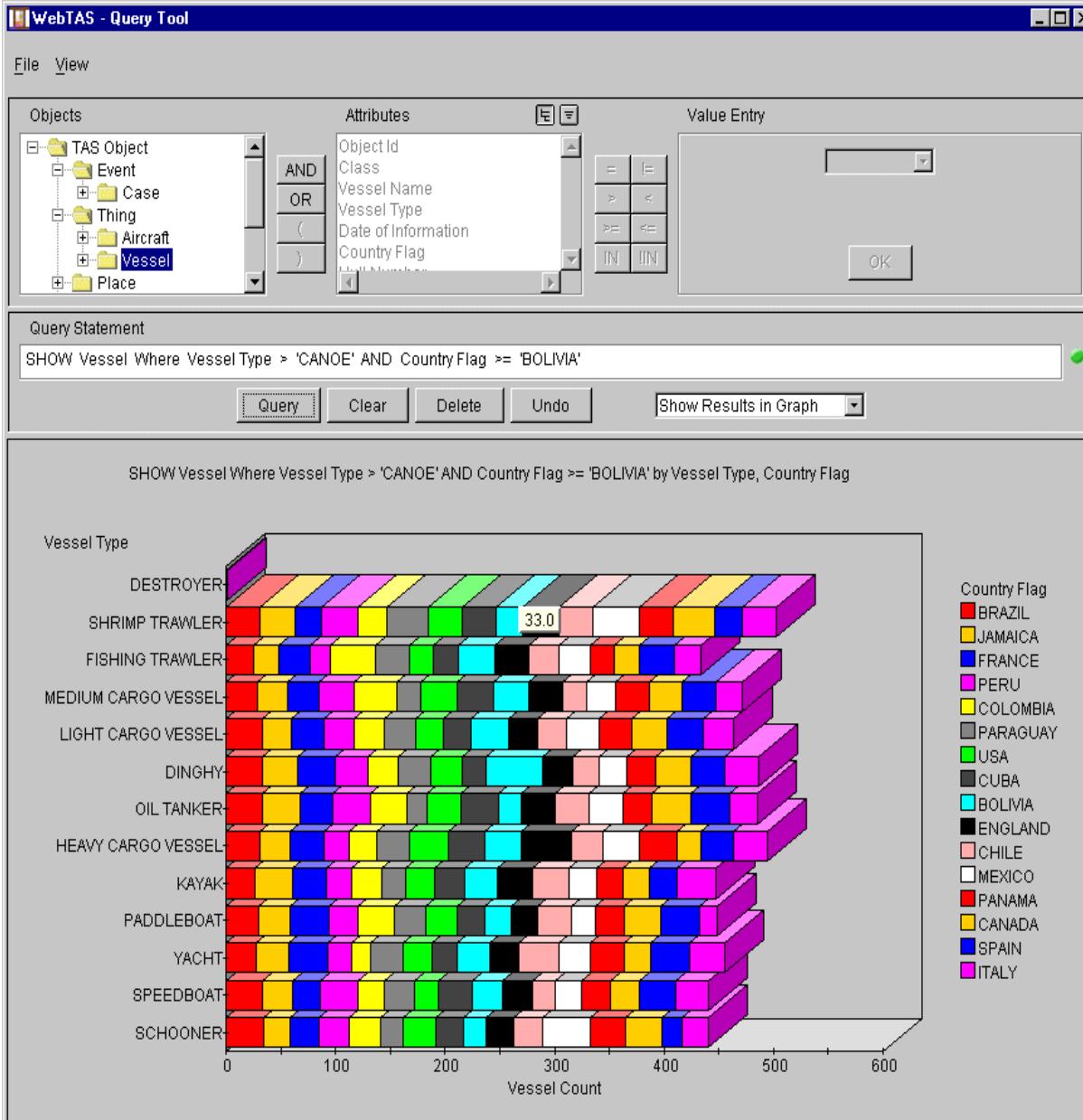
- The Query Tool allows users to build ad-hoc queries with a simple point and click interface "*Show me the SUSPECT Air Tracks with average speed > 230 knots*"
- Queries may also include Area of Interest attributes "*Show me Airfields within 150km of this point*"
- Results may be displayed in tables, timelines, maps, graphs, histogrids and web browsers

WebTAS Timeline Tool



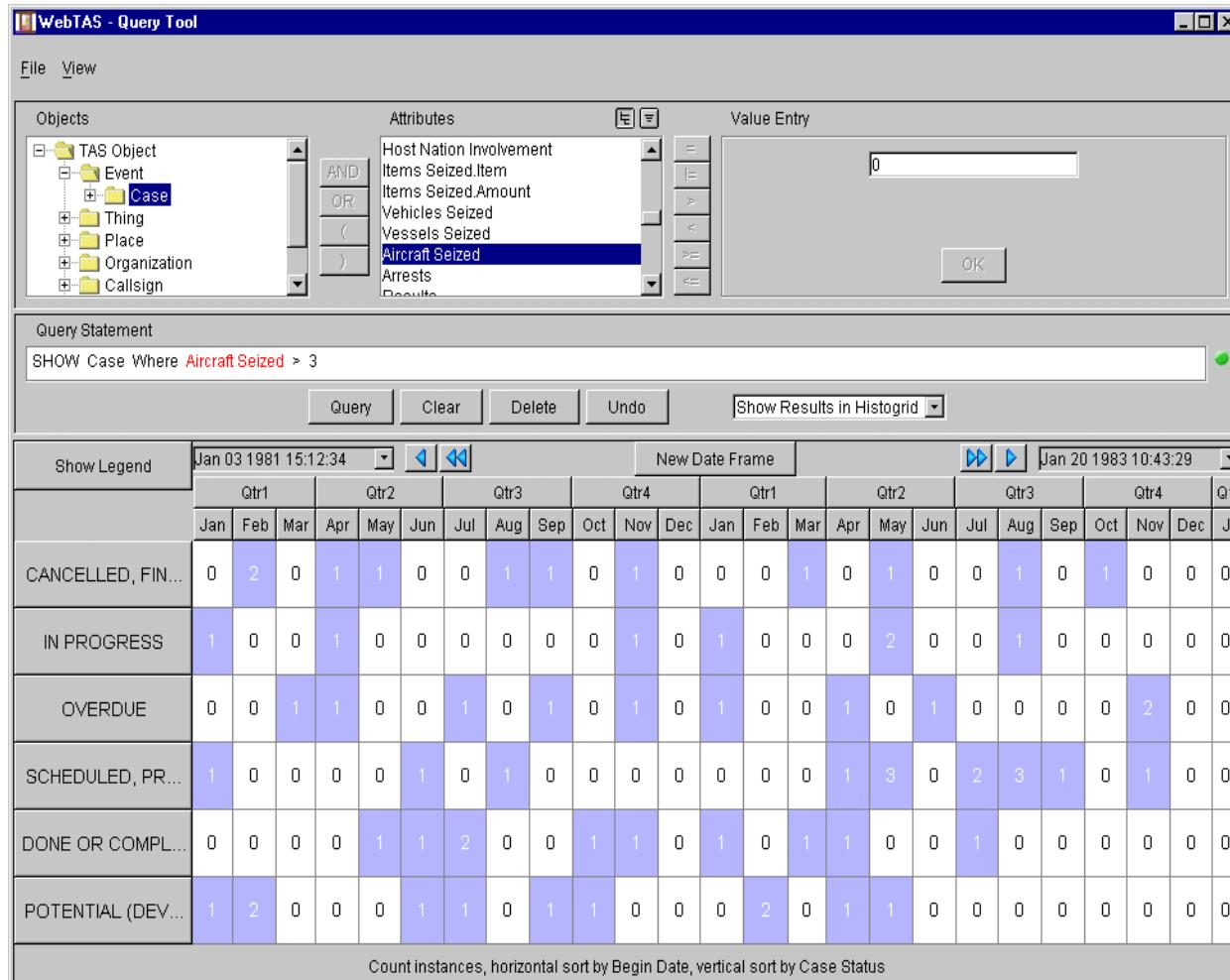
- WebTAS specializes in event-oriented pattern detection
- Timelines display any data with temporal attributes
- Critical view for pattern analysis where inter-event timing is an important factor
- Timeline views may represent several minutes or many years depending on the nature of the question

WebTAS Graph Tool



- The Graph Tool provides 2D and 3D views of query data results.
- Typically counts are the accumulation method, but WebTAS can accumulate any numeric attribute (e.g., Total amount of cocaine seized by month and by seizing organization)
- WebTAS specializes in time-oriented histogram graphs
- This graph shows

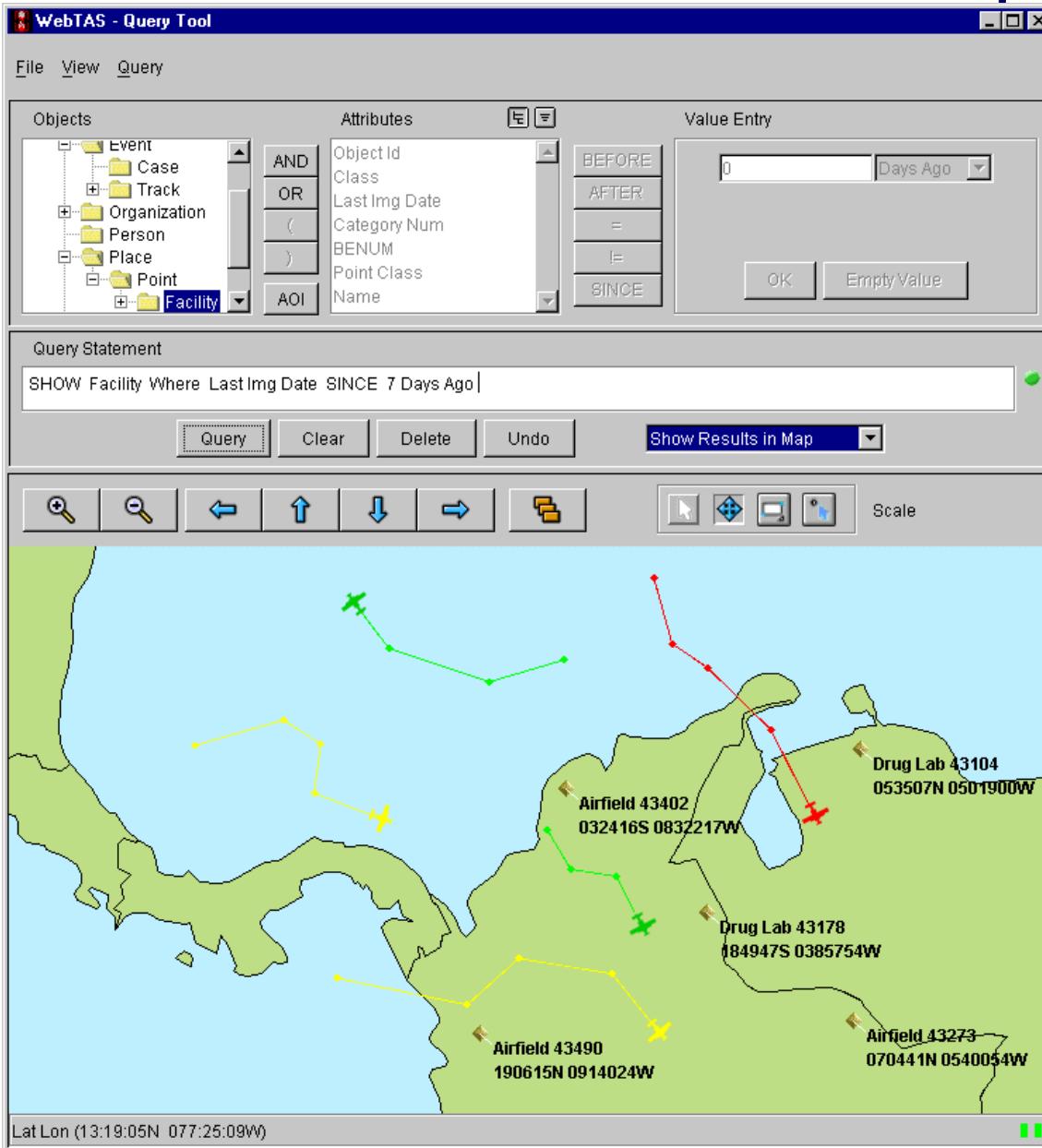
WebTAS Histogrid Tool



- The Histogrid display allows visualization of time-oriented clusters
- The darker the boxes the more concentrated the number of activities
- Like the graph, counts and numeric attributes may be accumulated

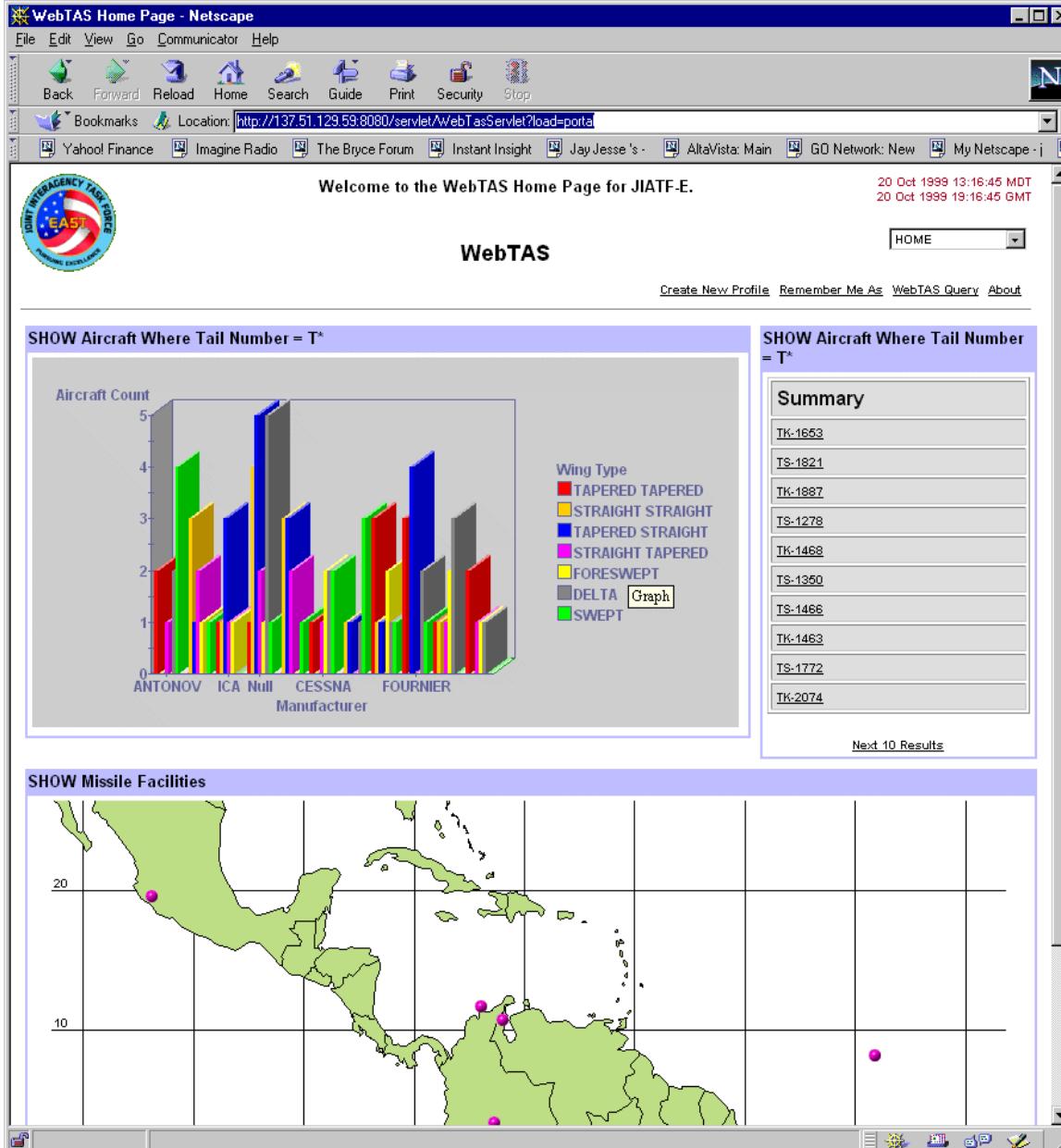
Example illustrates all case files between January 1981 and January 1983 where more than 3 aircraft were seized. The view summarizes the number of cases per month/quarter which match this criteria horizontally by date, and vertically by the case status.

WebTAS Map Tool



- Map Tool provides a geographic view for the query results
- Any item that contains spatial information may be displayed on a map
- Multiple queries may be overlaid and hidden
- Supports many standard map data types: ArcView Shapefiles, DTED (Terrain), CADRG, Digital Chart of the World and many others
- Provides several spatial tools: Time and Distance Calculators

WebTAS Browser Portal



- The portal is a user-customizable, browser-based view of WebTAS data
- Similar to portals on the world-wide-web, users can tailor the queries and types of displays
- For example: An analyst working on Caper Focus can set up queries displaying activity by suspect vessels over the last 12 hours on a map. The analyst can then view the portal page first thing in the

WebTAS Server Pages

Recently Modified TAS Objects - Netscape

File Edit View Go Communicator Help

Back Forward Reload Home Search Guide Print Security Stop

Bookmarks Location: http://137.51.129.100:8080/servlet/WebTasServlet/webtas/tsp/dennis.tashml?load=tsp

Yahoo Finance Imagine Radio The Bryce Forum Instant Insight Jay Jesse's AltaVista: Main GO Network: New My Netscape



WebTAS Current Picture

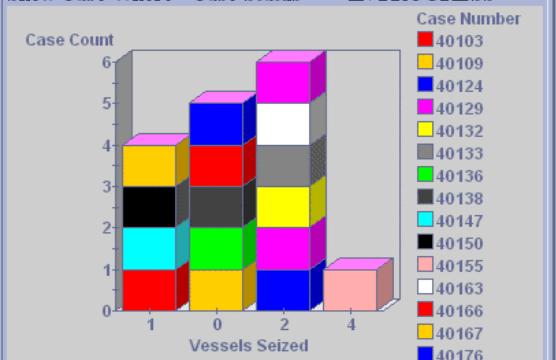
Graph of Show "TAS Object" Where "Modify Date" AFTER "Oct 18 1999 13:31"
Map of SHOW "Missile Facilities" Where "Modify Date" AFTER "Oct 18 1999 13:31"

Show Airfield



Show Case Where "Case Status" = "IN PROGRESS"

Case Count



Vessels Seized	Case Number	Count
1	40103	1
1	40109	1
1	40124	1
1	40129	1
1	40132	1
1	40133	1
1	40136	1
1	40138	1
1	40147	1
1	40150	1
1	40155	1
1	40163	1
1	40166	1
1	40167	1
2	40129	2
2	40132	1
2	40136	1
2	40147	1
2	40163	1
3	40129	1
4	40163	1

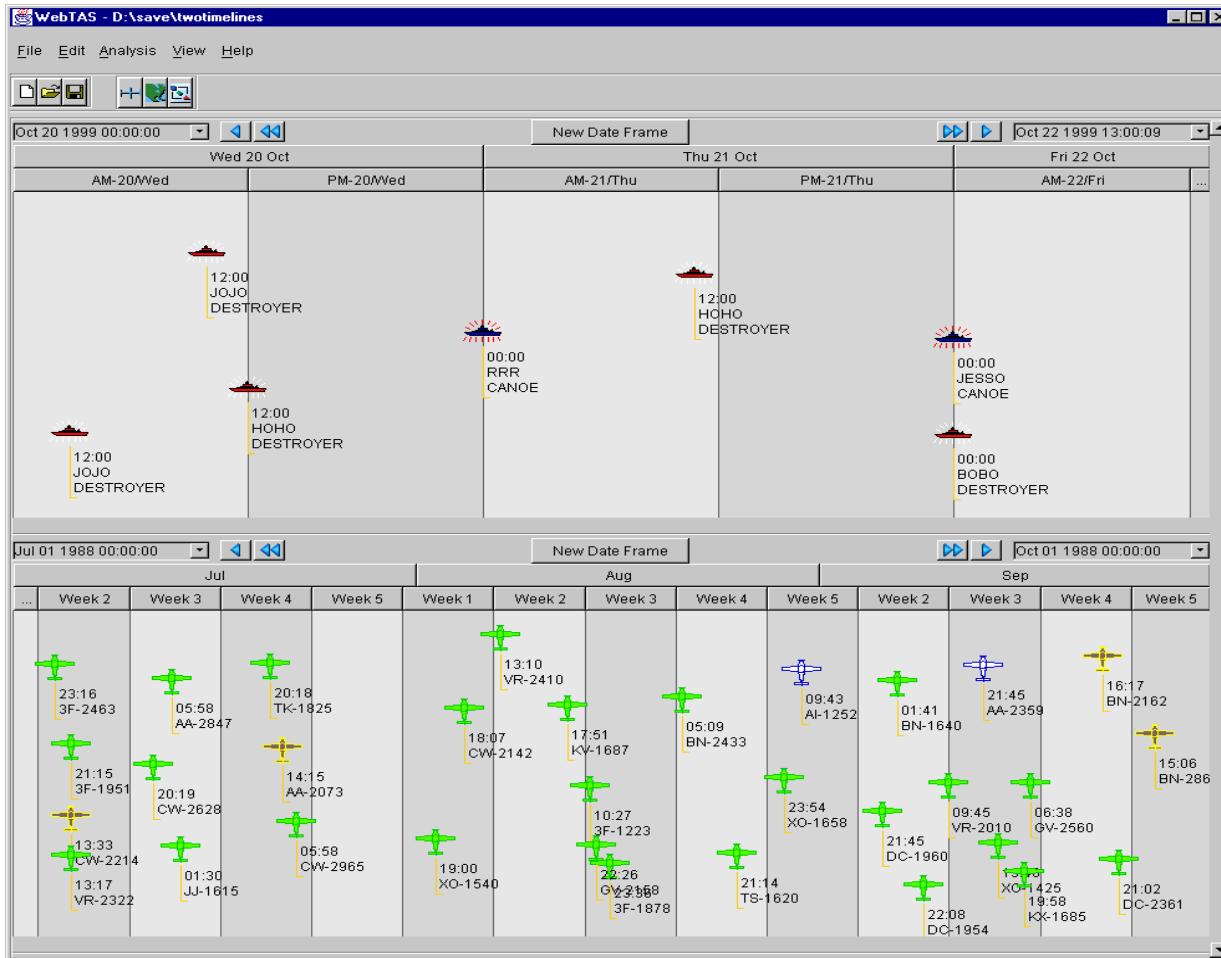
Show Case Where "Case Status" = "IN PROGRESS"

Caper Focus	Case Number/Status
7	40103 / IN PROGRESS
7	40109 / IN PROGRESS
7	40124 / IN PROGRESS
7	40129 / IN PROGRESS
7	40132 / IN PROGRESS
7	40136 / IN PROGRESS
7	40138 / IN PROGRESS

Document: Done

- WebTAS Server Pages allow web-capable organizations to build and integrate WebTAS components and queries into existing or new pages
- For example: An organization that creates a daily activity overview via a web page can insert a map component that contains the latest suspect track views
- Components are dynamically

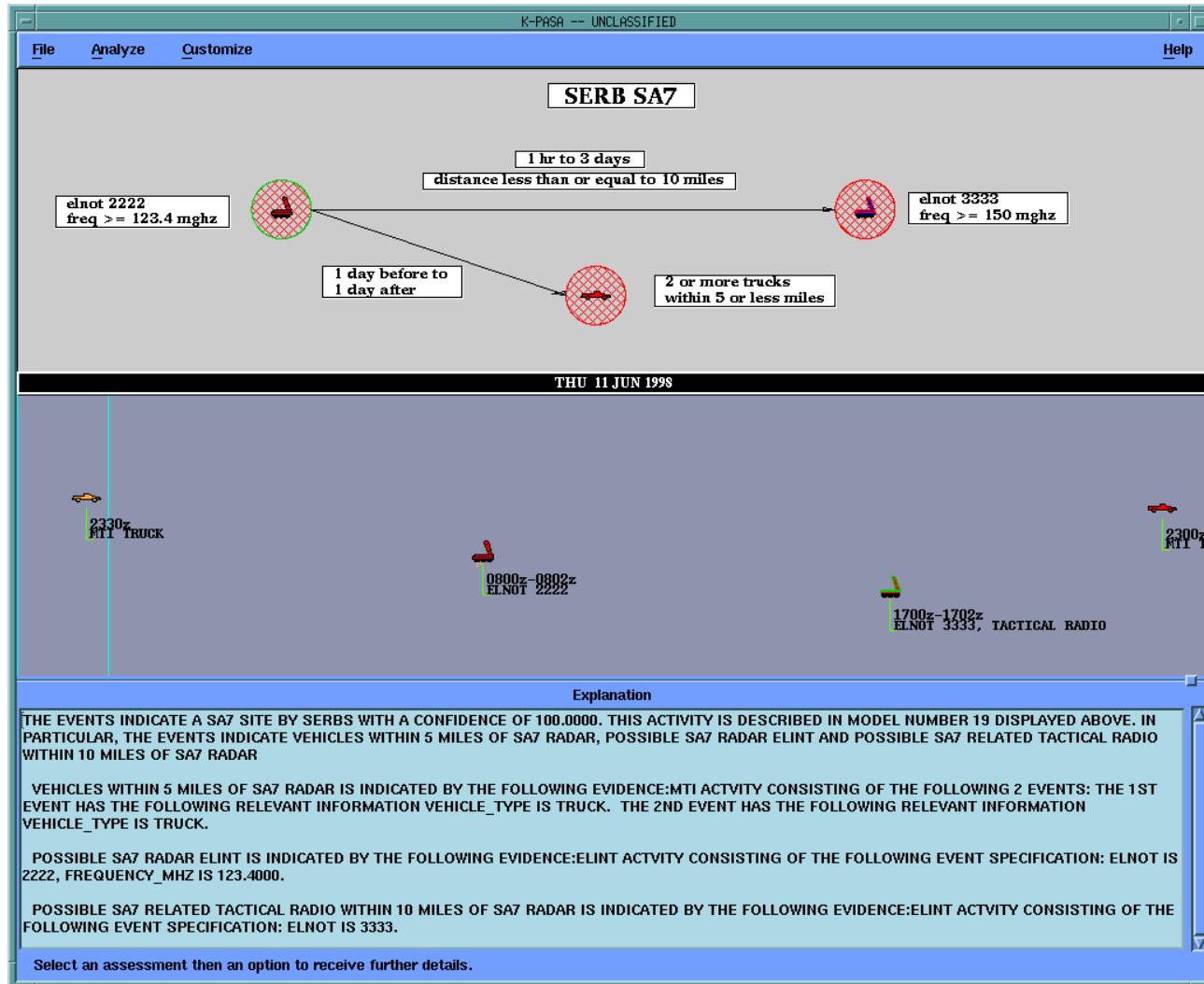
WebTAS Project Tool



- The Project Tool supports a work environment for a specific analysis task
- Supports historical pattern analysis and model development
- Allows users to setup and save views and settings and save them into re-callable projects.

Example: A Colombian air analyst may create a project which looks at air activity. The current air track activity is displayed using a timeline and map. A third band could depict a timeline with a classic drug drop from a year ago to allow a comparison between current activity and historical precedents

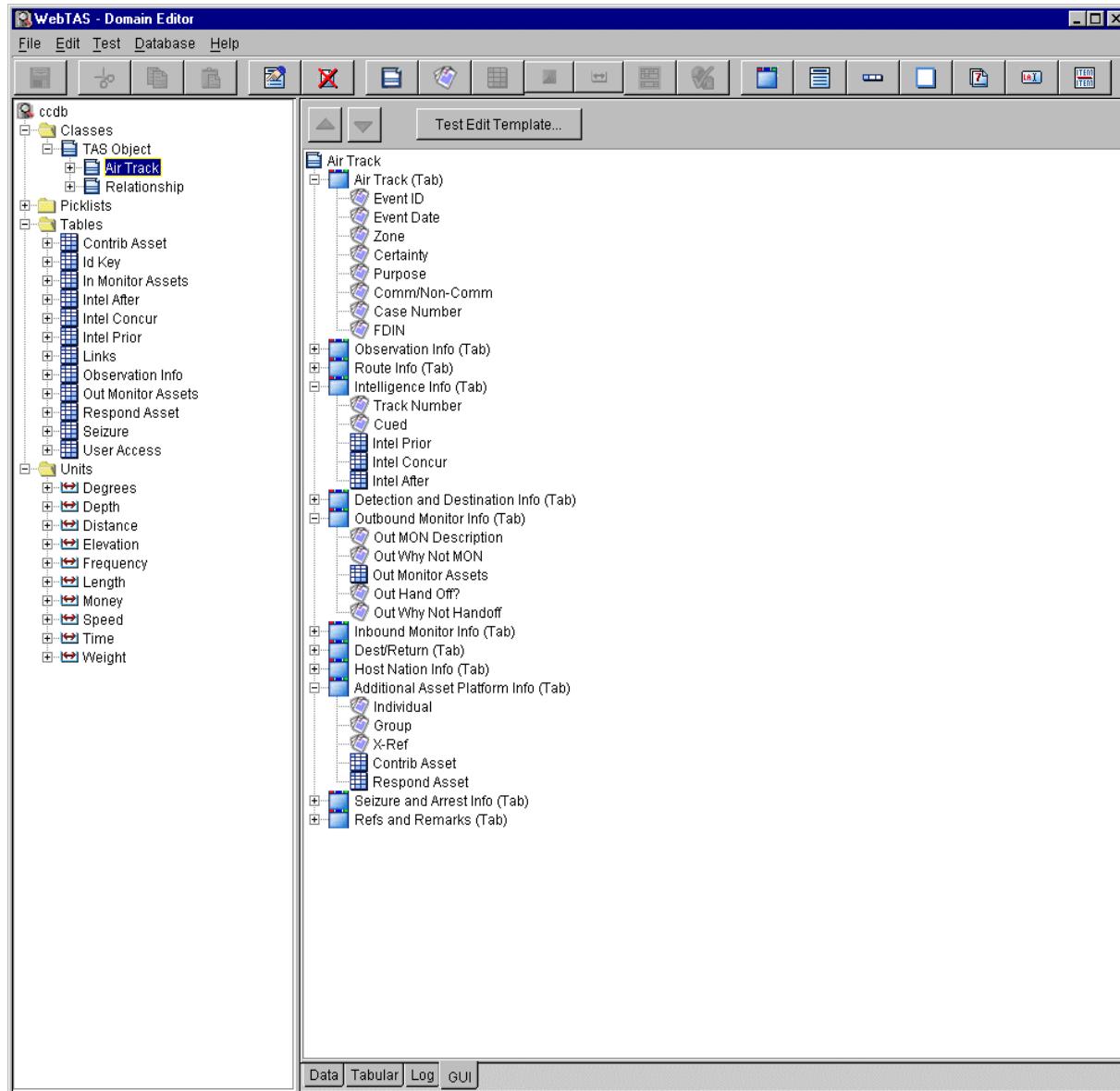
WebTAS K-PASA Expert System



- This display shows an explanation screen describing the evidence associated with a particular assessment

- Knowledge-based Predictive Analysis and Situation Assessment (K-PASA) provides time-oriented pattern analysis functions
- Analysts build models of activities that may be verified against large historical data sets
- Real-time detection alerts analysts of potential ongoing situations

WebTAS Domain Builder



- The Domain Builder is a site administrator tool providing the ability to add or modify classes or attributes in the data schema.
- For example: A site may add a new attribute to the track object, or add an entirely new object called Seizure
- No code changes are necessary. All data schema changes automatically configure the WebTAS tools